REMARKS

The Notice of Non-Compliant Amendment mailed July 30, 2007 has been carefully reviewed and the foregoing amendment and following remarks are made in consequence thereof. This Response resubmits the amendments to the Claims as filed January 5, 2006.

In addition, this Response submits the amendments to the Abstract on a separate sheet as required by 37 C.F.R. 1.72. Further, in response to the Notice of Non-Compliant Amendment mailed March 27, 2006, Claim 35 has been given the proper status identifier of "previously presented." Accordingly, Applicants submit that the present Amendment is in compliance with the requirements of 37 CFR 1.121.

Claims 1-8, 10-17, 19-30 and 32-35 are now pending in this application. Claims 1-35 stand rejected. Claims 9, 18, and 31 have been canceled.

The objection to the specification is respectfully traversed. Specifically, the Abstract of the disclosure has been amended to describe the portion of the disclosure directed to the apparatus, and paragraph [0014] has been amended to end with a period. Claims 9, 18, and 31 have been canceled. Claim 25 has been amended as supported by the specification. In addition, Claims 3, 8, 12, 14, 15, 17, 21, 27, 28, 30, and 34 have each been amended as supported by the specification. Moreover, Claim 1 has also been amended in accordance with the Examiner's suggestion. Accordingly, for at least the reasons set forth above, Applicants respectfully request the objections to the specification be withdrawn.

The objection to Claims 1-10, 17, and 27 is respectfully traversed. Specifically, Applicants have amended Claims 1, 17, and 27 in accordance with the Examiner's suggestions. Claims 2-10 depend from independent Claim 1. Accordingly, for at least the reasons set forth above, Applicants respectfully request the objections to Claims 1-10, 17, and 27 be withdrawn.

The rejection of Claims 1, 2, 11, 23, and 24 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,923,616 to McRae, Jr. et al. (hereinafter referred to as "McRae") is respectfully traversed.

McRae describes a rotor assembly (50) for a gas turbine engine (10). The rotor assembly (50) includes a plurality of rotor blades (52) that each include a platform (62), an airfoil (60), a shank (64), and a dovetail (66). The airfoil (60) extends radially outward from the platform (62) and the shank (64) extends radially inward from the platform (62) to the dovetail (66). The shank (64) includes a pair of opposed sidewalls (120, 122) coupled together by an upstream sidewall (124) and a downstream sidewall (126). A cooling circuit (130) extends through a portion of the shank (64) for supplying cooling air for impingement cooling a portion of the rotor blade (52) through a plurality of openings (132, 134) extending through one of the shank opposed sidewalls (122).

Claim 1 recites a method for assembling a rotor assembly for gas turbine engine, wherein the method comprises "providing a first rotor blade . . . coupling the first rotor blade to a rotor shaft using the dovetail such that during engine operation, cooling air is channeled from the blade internal cavity through a blade impingement cooling circuit for impingement cooling the first rotor blade platform radially inner surface . . . coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms, and such that during operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform."

McRae does not describe nor suggest a method for assembling a rotor assembly as is recited in Claim 1. More specifically, McRae does not describe nor suggest coupling a second rotor blade to the rotor shaft such that operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform. Rather, McRae describes a cooling circuit extending through a portion of a shank for supplying cooling air for impingement cooling a portion of a rotor blade through a plurality of openings extending through one of the shank opposed sidewalls.

Accordingly, for at least the reasons set forth above, Claim 1 is respectfully submitted to be patentable over McRae.

Claim 2 depends from independent Claim 1. When the recitations of Claim 2 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 2 likewise is patentable over McRae.

Claim 11 recites a rotor blade for a gas turbine engine, wherein the rotor blade comprises "a platform comprising a radially outer surface and a radially inner surface, said platform further comprises a leading edge sidewall and a trailing edge sidewall connected together by a convex-side wall and an opposite concave-side wall, a portion of said trailing edge sidewall is recessed between said platform radially outer and radially inner surfaces to facilitate platform trailing edge cooling . . . ."

McRae does not describe nor suggest a rotor blade as is recited in Claim 11. More specifically, McRae does not describe nor suggest a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge. Rather, McRae describes a cooling circuit extending through a portion of a shank for supplying cooling air for impingement cooling a portion of a rotor blade through a plurality of openings extending through one of the shank opposed sidewalls.

Accordingly, for at least the reasons set forth above, Claim 11 is respectfully submitted to be patentable over McRae.

Claim 23 recites a gas turbine engine rotor assembly comprising "a plurality of circumferentially-spaced rotor blades . . . each said rotor blade comprising an airfoil, a platform, a shank, and a dovetail . . . said platform further comprising a leading edge sidewall and an opposite trailing edge sidewall connected together by a pair of oppositely disposed platform sidewalls, at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of said platform trailing edge . . . at least a first of said rotor blades comprising an impingement cooling circuit extending

through a portion of said shank for channeling cooling air from said blade cavity for impingement cooling said platform radially inner surface."

McRae does not describe nor suggest a gas turbine engine rotor assembly as is recited in Claim 23. More specifically, McRae does not describe nor suggest a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge in combination with an impingement cooling circuit extending through a portion of the shank for channeling cooling air from the blade cavity for impingement cooling the platform. Rather, McRae describes a cooling circuit extending through a portion of a shank for supplying cooling air for impingement cooling a portion of a rotor blade through a plurality of openings extending through one of the shank opposed sidewalls.

Accordingly, for at least the reasons set forth above, Claim 23 is respectfully submitted to be patentable over McRae, Jr. et al.

Claim 24 depends from independent Claim 23. When the recitations of Claim 24 are considered in combination with the recitations of Claim 23, Applicants submit that dependent Claim 24 likewise is patentable over McRae.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1, 2, 11, 23, and 24 be withdrawn.

The rejection of Claims 1-3, 7, 8, 11, 12, 16, 17, 23-25, 29, and 30 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,281,097 to Wilson (hereinafter referred to as "Wilson") is respectfully traversed.

Wilson describes a rotor assembly for a gas turbine engine. The rotor assembly includes a plurality of rotor blades (18) that each include an airfoil (20), a platform (22), a shank (24) and a root (16). The shank (24) includes a pair of opposed, circumferentially-spaced sidewalls coupled together by a leading edge sidewall and a trailing edge sidewall. The radially inner side of each platform (22) is formed with a plurality of recesses (44) and

inter-connected grooves (46) that each extend circumferentially from each recess (44) to a circumferential edge (22c) of platform (22). Compressor discharge air is routed into a cooling cavity (28) defined within each blade (18) via a plurality of metering passages (49) defined within a portion of a turbine disk (12) to which blades (18) are coupled. The cooling air is then channeled outward from cavities (28) through a plurality of damper openings (48) formed in one of the circumferentially-spaced shank sidewalls. The cooling air is then channeled through grooves (46) to facilitate convectively cooling the platform (22).

Claim 1 recites a method for assembling a rotor assembly for gas turbine engine, wherein the method comprises "providing a first rotor blade . . . coupling the first rotor blade to a rotor shaft using the dovetail such that during engine operation, cooling air is channeled from the blade internal cavity through a blade impingement cooling circuit for impingement cooling the first rotor blade platform radially inner surface . . . coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms, and such that during operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform."

Wilson does not describe nor suggest a method for assembling a rotor assembly as is recited in Claim 1. More specifically, Wilson does not describe nor suggest coupling a second rotor blade to the rotor shaft such that operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform. Rather, Wilson describes a platform formed with a plurality of inter-connected grooves, wherein the platform is cooled by compressor discharge air routed into a cooling cavity defined within each blade, then channeled outward from the cavities through a plurality of damper openings formed in a circumferentially-spaced shank sidewall. The cooling air is then channeled through grooves to facilitate convectively cooling the platform.

Accordingly, for at least the reasons set forth above, Claim 1 is respectfully submitted to be patentable over Wilson.

Claims 2, 3, 7, and 8 depend from independent Claim 1. When the recitations of Claims 2, 3, 7, and 8 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2, 3, 7, and 8 likewise are patentable over Wilson.

Claim 11 recites a rotor blade for a gas turbine engine, wherein the rotor blade comprises "a platform comprising a radially outer surface and a radially inner surface, said platform further comprises a leading edge sidewall and a trailing edge sidewall connected together by a convex-side wall and an opposite concave-side wall, a portion of said trailing edge sidewall is recessed between said platform radially outer and radially inner surfaces to facilitate platform trailing edge cooling . . . ."

Wilson does not describe nor suggest a rotor blade as is recited in Claim 11. More specifically, Wilson does not describe nor suggest a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge. Rather, Wilson describes a platform formed with a plurality of inter-connected grooves, wherein the platform is cooled by compressor discharge air routed into a cooling cavity defined within each blade, then channeled outward from the cavities through a plurality of damper openings formed in a circumferentially-spaced shank sidewall. The cooling air is then channeled through grooves to facilitate convectively cooling the platform.

Accordingly, for at least the reasons set forth above, Claim 11 is respectfully submitted to be patentable over Wilson.

Claims 12, 16, and 17 depend from independent Claim 11. When the recitations of Claims 12, 16, and 17 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claims 12, 16, and 17 likewise are patentable over Wilson.

Claim 23 recites a gas turbine engine rotor assembly comprising "a plurality of circumferentially-spaced rotor blades . . . each said rotor blade comprising an airfoil, a platform, a shank, and a dovetail . . . said platform further comprising a leading edge sidewall and an opposite trailing edge sidewall connected together by a pair of oppositely disposed

platform sidewalls, at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of said platform trailing edge . . . at least a first of said rotor blades comprising an impingement cooling circuit extending through a portion of said shank for channeling cooling air from said blade cavity for impingement cooling said platform radially inner surface."

Wilson does not describe nor suggest a gas turbine engine rotor assembly as is recited in Claim 23. More specifically, Wilson does not describe nor suggest a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge in combination with an impingement cooling circuit extending through a portion of the shank for channeling cooling air from the blade cavity for impingement cooling the platform. Rather, Wilson describes a platform formed with a plurality of inter-connected grooves, wherein the platform is cooled by compressor discharge air routed into a cooling cavity defined within each blade, then channeled outward from the cavities through a plurality of damper openings formed in a circumferentially-spaced shank sidewall. The cooling air is then channeled through grooves to facilitate convectively cooling the platform.

Accordingly, for at least the reasons set forth above, Claim 23 is respectfully submitted to be patentable over Wilson.

Claims 24, 25, 29, and 30 depend from independent Claim 23. When the recitations of Claims 24, 25, 29, and 30 are considered in combination with the recitations of Claim 23, Applicants submit that dependent Claims 24, 25, 29, and 30 likewise are patentable over Wilson.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1-3, 7, 8, 11, 12, 16, 17, 23-25, 29, and 30 be withdrawn.

The rejection of Claims 1-5, 8, 11, 13-17, 23, 24, and 26-30 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,341,939 to Lee (hereinafter referred to as "Lee") is respectfully traversed.

Lee describes a turbine blade (10) including an airfoil (18), a shank (22), a dovetail (24), and a platform (20). The platform (20) extends between the airfoil (18) and the shank (22). The dovetail (24) extends radially from the shank (22). A flow channel (28) extends through the turbine blade (10) for channeling cooling air through the blade (10). A pair of openings (36) each extend through opposite sides of the shank (22) and into the flow channel (28) to enable cooling air to be discharged from the cooling flow channel (28) outward through the shank (22). The platform (20) includes a plurality of openings (38) that extend from a radially outer side (20a) of the platform (20) to a radially inner side (20b) of the platform. At least one of the platform openings (38) is in tandem alignment with each shank opening (36). Cooling air discharged from the platform openings (38) provides convective and impingement cooling of the blade (10).

Claim 1 recites a method for assembling a rotor assembly for gas turbine engine, wherein the method comprises "providing a first rotor blade . . . coupling the first rotor blade to a rotor shaft using the dovetail such that during engine operation, cooling air is channeled from the blade internal cavity through a blade impingement cooling circuit for impingement cooling the first rotor blade platform radially inner surface . . . coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms, and such that during operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform."

Lee does not describe nor suggest a method for assembling a rotor assembly as is recited in Claim 1. More specifically, Lee does not describe nor suggest coupling a second rotor blade to the rotor shaft such that operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform. Rather, Lee describes a flow channel extending through a turbine blade for channeling cooling air through the blade and a pair of openings extending through opposite sides of a shank and into the flow channel to enable cooling air to be discharged from the cooling flow channel outward through the shank. The platform includes a plurality of openings that extend from a radially outer side of the platform to a radially inner side of the

platform, wherein at least one of the platform openings is in tandem alignment with each shank opening.

Accordingly, for at least the reasons set forth above, Claim 1 is respectfully submitted to be patentable over Lee.

Claims 2-5 and 8 depend from independent Claim 1. When the recitations of Claims 2-5 and 8 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-5 and 8 likewise are patentable over Lee.

Claim 11 recites a rotor blade for a gas turbine engine, wherein the rotor blade comprises "a platform comprising a radially outer surface and a radially inner surface, said platform further comprises a leading edge sidewall and a trailing edge sidewall connected together by a convex-side wall and an opposite concave-side wall, a portion of said trailing edge sidewall is recessed between said platform radially outer and radially inner surfaces to facilitate platform trailing edge cooling . . . ."

Lee does not describe nor suggest a rotor blade as is recited in Claim 11. More specifically, Lee does not describe nor suggest a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge. Rather, Lee describes a flow channel extending through a turbine blade for channeling cooling air through the blade and a pair of openings extending through opposite sides of a shank and into the flow channel to enable cooling air to be discharged from the cooling flow channel outward through the shank. The platform includes a plurality of openings that extend from a radially outer side of the platform to a radially inner side of the platform, wherein at least one of the platform openings is in tandem alignment with each shank opening.

Accordingly, for at least the reasons set forth above, Claim 11 is respectfully submitted to be patentable over Lee.

Claims 13-17 depend from independent Claim 11. When the recitations of Claims 13-17 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claims 13-17 likewise are patentable over Lee.

Claim 23 recites a gas turbine engine rotor assembly comprising "a plurality of circumferentially-spaced rotor blades . . . each said rotor blade comprising an airfoil, a platform, a shank, and a dovetail . . . said platform further comprising a leading edge sidewall and an opposite trailing edge sidewall connected together by a pair of oppositely disposed platform sidewalls, at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of said platform trailing edge . . . at least a first of said rotor blades comprising an impingement cooling circuit extending through a portion of said shank for channeling cooling air from said blade cavity for impingement cooling said platform radially inner surface."

Lee does not describe nor suggest a gas turbine engine rotor assembly as is recited in Claim 23. More specifically, Lee does not describe nor suggest a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge in combination with an impingement cooling circuit extending through a portion of the shank for channeling cooling air from the blade cavity for impingement cooling the platform. Rather, Lee describes a flow channel extending through a turbine blade for channeling cooling air through the blade and a pair of openings extending through opposite sides of a shank and into the flow channel to enable cooling air to be discharged from the cooling flow channel outward through the shank. The platform includes a plurality of openings that extend from a radially outer side of the platform to a radially inner side of the platform, wherein at least one of the platform openings is in tandem alignment with each shank opening.

Accordingly, for at least the reasons set forth above, Claim 23 is respectfully submitted to be patentable over Lee.

Claims 24 and 26-30 depend from independent Claim 23. When the recitations of Claims 24 and 26-30 are considered in combination with the recitations of Claim 23, Applicants submit that dependent Claims 24 and 26-30 likewise are patentable over Wilson.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1-5, 8, 11, 13-17, 23, 24, and 26-30 be withdrawn.

The rejection of Claims 6, 9, 18, and 31 under 35 U.S.C. § 103(a) as being unpatentable over either McRae, Wilson, and/or Lee in view of U.S. Patent 2,915,279 to Chamberlin (hereinafter referred to as "Chamberlin") is respectfully traversed.

McRae, Wilson, and Lee are described above. Chamberlin describes a turbine assembly (10) including a plurality of turbine blades (11) that each include an airfoil portion, a platform (12) and a root portion (14). An upstream face (15) of each root portion (14) includes a plurality of axially projecting ribs (20) that extend across the full face of the root portion. The circumferentially-spaced sides (17 and 18) of the root portion (14) each include a recess or depression (22) having a square cross-sectional shape. A corner between each face (17) and upstream face (15) is cut away, as indicated at (24), between root portion (14) and platform (12). Cut-away portion (24) enables cooling air to enter depressions (22) and form vortices which provide cooling to the blade (11). A downstream side of face (17) includes a cut-away portion (26) to enable the spent cooling air to be discharged from depressions (22).

Claim 1 recites a method for assembling a rotor assembly for gas turbine engine, wherein the method comprises "providing a first rotor blade . . . coupling the first rotor blade to a rotor shaft using the dovetail such that during engine operation, cooling air is channeled from the blade internal cavity through a blade impingement cooling circuit for impingement cooling the first rotor blade platform radially inner surface . . . coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms, and such that during operation a portion of a trailing edge of the first rotor blade

platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform."

None of McRae, Wilson, Lee, and Chamberlin, considered alone or in combination, describes nor suggests a method for assembling a rotor assembly, as is recited in Claim 1. More specifically, none of McRae, Wilson, Lee, and Chamberlin, considered alone or in combination, describes nor suggests coupling a second rotor blade to the rotor shaft such that operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform. Rather, McRae describes a cooling circuit extending through a portion of a shank for supplying cooling air for impingement cooling a portion of a rotor blade through a plurality of openings extending through one of the shank opposed sidewalls. Wilson describes a platform formed with a plurality of inter-connected grooves, wherein the platform is cooled by compressor discharge air routed into a cooling cavity defined within each blade, then channeled outward from the cavities through a plurality of damper openings formed in a circumferentially-spaced shank sidewall. The cooling air is then channeled through grooves to facilitate convectively cooling the platform. Lee describes a flow channel extending through a turbine blade for channeling cooling air through the blade and a pair of openings extending through opposite sides of a shank and into the flow channel to enable cooling air to be discharged from the cooling flow channel outward through the shank. The platform includes a plurality of openings that extend from a radially outer side of the platform to a radially inner side of the platform, wherein at least one of the platform openings is in tandem alignment with each shank opening. Chamberlin describes a corner between each root portion face and an upstream face that is cut away between the root portion and a platform. The cut-away portion enables cooling air to enter depressions in the root portion and form vortices which provide cooling to a blade. A downstream side of each root portion face includes a cut-away portion to enable the spent cooling air to be discharged from depressions.

Accordingly, for at least the reasons set forth above, Claim 1 is respectfully submitted to be patentable over McRae, Wilson, and/or Lee in view of Chamberlin.

Claims 9, 18, and 31 have been canceled. Claim 6 depends from independent Claim 1. When the recitations of Claim 6 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 6 likewise is patentable over McRae, Wilson, and/or Lee in view of Chamberlin.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 6, 9, 18, and 31 be withdrawn.

The rejection of Claims 19, 21, 22, 32, 34, and 35 under 35 U.S.C. § 103(a) as being unpatentable over either McRae, Wilson, and/or Lee in view of U.S. Patent 6,808,368 to Tomberg (hereinafter referred to as "Tomberg") is respectfully traversed.

McRae, Wilson, and Lee are described above. Tomberg describes an airfoil shape for a turbine bucket (16). The turbine bucket includes an airfoil (36), a platform (30), a shank (32), and a dovetail (32). The shank includes a leading edge seal pin cavity and a trailing edge pin cavity.

Claim 1 recites a method for assembling a rotor assembly for gas turbine engine, wherein the method comprises "providing a first rotor blade . . . coupling the first rotor blade to a rotor shaft using the dovetail such that during engine operation, cooling air is channeled from the blade internal cavity through a blade impingement cooling circuit for impingement cooling the first rotor blade platform radially inner surface . . . coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms, and such that during operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform."

None of McRae, Wilson, Lee, and Tomberg, considered alone or in combination, describes or suggests a method for assembling a rotor assembly for gas turbine engine, as is recited in Claim 1. More specifically, none of McRae, Wilson, Lee, and Tomberg, considered alone or in combination, describes nor suggests coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade

platforms, and such that during operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform. Rather, McRae describes a cooling circuit extending through a portion of a shank for supplying cooling air for impingement cooling a portion of a rotor blade through a plurality of openings extending through one of the shank opposed sidewalls. Wilson describes a platform formed with a plurality of inter-connected grooves, wherein the platform is cooled by compressor discharge air routed into a cooling cavity defined within each blade, then channeled outward from the cavities through a plurality of damper openings formed in a circumferentially-spaced shank sidewall. The cooling air is then channeled through grooves to facilitate convectively cooling the platform. Lee describes a flow channel extending through a turbine blade for channeling cooling air through the blade and a pair of openings extending through opposite sides of a shank and into the flow channel to enable cooling air to be discharged from the cooling flow channel outward through the shank. The platform includes a plurality of openings that extend from a radially outer side of the platform to a radially inner side of the platform, wherein at least one of the platform openings is in tandem alignment with each shank opening. Tomberg describes an airfoil shape for a turbine bucket including an airfoil, a platform, a shank, and a dovetail, wherein the shank includes a leading edge seal pin cavity and a trailing edge pin cavity.

Accordingly, for at least the reasons set forth above, Claim 1 is respectfully submitted to be patentable over McRae, Wilson, and/or Lee in view of Tomberg.

Claim 11 recites a rotor blade for a gas turbine engine, wherein the rotor blade comprises "a platform comprising a radially outer surface and a radially inner surface, said platform further comprises a leading edge sidewall and a trailing edge sidewall connected together by a convex-side wall and an opposite concave-side wall, a portion of said trailing edge sidewall is recessed between said platform radially outer and radially inner surfaces to facilitate platform trailing edge cooling . . . ."

None of McRae, Wilson, Lee, and Tomberg, considered alone or in combination, describes nor suggests a rotor blade for a gas turbine engine, as is recited in Claim 11. More

specifically, none of McRae, Wilson, Lee, and Tomberg, considered alone or in combination, describes nor suggests a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge. Rather, McRae describes a cooling circuit extending through a portion of a shank for supplying cooling air for impingement cooling a portion of a rotor blade through a plurality of openings extending through one of the shank opposed sidewalls. Wilson describes a platform formed with a plurality of inter-connected grooves, wherein the platform is cooled by compressor discharge air routed into a cooling cavity defined within each blade, then channeled outward from the cavities through a plurality of damper openings formed in a circumferentially-spaced shank sidewall. The cooling air is then channeled through grooves to facilitate convectively cooling the platform. Lee describes a flow channel extending through a turbine blade for channeling cooling air through the blade and a pair of openings extending through opposite sides of a shank and into the flow channel to enable cooling air to be discharged from the cooling flow channel outward through the shank. The platform includes a plurality of openings that extend from a radially outer side of the platform to a radially inner side of the platform, wherein at least one of the platform openings is in tandem alignment with each shank opening. Tomberg describes an airfoil shape for a turbine bucket including an airfoil, a platform, a shank, and a dovetail, wherein the shank includes a leading edge seal pin cavity and a trailing edge pin cavity.

Accordingly, for at least the reasons set forth above, Claim 11 is respectfully submitted to be patentable over McRae, Wilson, and/or Lee, in view of Tomberg.

Claims 19, 21, and 22 depend from independent Claim 11. When the recitations of Claims 19, 21, and 22 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claims 19, 21, and 22 likewise are patentable over McRae, Wilson, and/or Lee, in view of Tomberg.

Claim 23 recites a gas turbine engine rotor assembly comprising "a plurality of circumferentially-spaced rotor blades . . . each said rotor blade comprising an airfoil, a

platform, a shank, and a dovetail . . . said platform further comprising a leading edge sidewall and an opposite trailing edge sidewall connected together by a pair of oppositely disposed platform sidewalls, at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of said platform trailing edge . . . at least a first of said rotor blades comprising an impingement cooling circuit extending through a portion of said shank for channeling cooling air from said blade cavity for impingement cooling said platform radially inner surface."

None of McRae, Wilson, Lee, and Tomberg, considered alone or in combination, describes nor suggests a gas turbine engine rotor assembly, as is recited in Claim 23. More specifically, none of McRae, Wilson, Lee, and Tomberg, considered alone or in combination, describes nor suggests a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge in combination with an impingement cooling circuit extending through a portion of the shank for channeling cooling air from the blade cavity for impingement cooling the platform. Rather, McRae describes a cooling circuit extending through a portion of a shank for supplying cooling air for impingement cooling a portion of a rotor blade through a plurality of openings extending through one of the shank opposed sidewalls. Wilson describes a platform formed with a plurality of inter-connected grooves, wherein the platform is cooled by compressor discharge air routed into a cooling cavity defined within each blade, then channeled outward from the cavities through a plurality of damper openings formed in a circumferentially-spaced shank sidewall. The cooling air is then channeled through grooves to facilitate convectively cooling the platform. Lee describes a flow channel extending through a turbine blade for channeling cooling air through the blade and a pair of openings extending through opposite sides of a shank and into the flow channel to enable cooling air to be discharged from the cooling flow channel outward through the shank. The platform includes a plurality of openings that extend from a radially outer side of the platform to a radially inner side of the platform, wherein at least one of the platform openings is in tandem alignment with each shank opening. Tomberg describes an airfoil shape for a turbine bucket including an airfoil, a platform, a shank, and a

dovetail, wherein the shank includes a leading edge seal pin cavity and a trailing edge pin cavity.

Accordingly, for at least the reasons set forth above, Claim 23 is respectfully submitted to be patentable over McRae, Wilson, and/or Lee, in view of Tomberg.

Claims 32, 34, and 35 depend from independent Claim 23. When the recitations of Claims 32, 34, and 35 are considered in combination with the recitations of Claim 23, Applicants submit that dependent Claims 32, 34, and 35 likewise are patentable over McRae, Wilson, and/or Lee, in view of Tomberg.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 19, 21, 22, 32, 34, and 35 be withdrawn.

The provisional rejections of Claims 1-35 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over various combinations of Claims 1, 2, 3, 6, 10, 11, 12, 13, 17, 21, 23, 24, 25, 26, 27, 29, 30, 32, and 33 of U.S. Patent Application No. 10/828,133, in view of various combinations of Wilson, Chamberlin, Tomberg, and/or Lee are respectfully traversed. Applicants note that U.S. Patent Application No. 10/828,133 was issued on December 12, 2006 as U.S. Patent 7,147,440 to Benjamin et al. (hereinafter referred to as "Benjamin '440").

Applicants respectfully traverse the Examiner's assessment of the differences between the claimed invention and Benjamin '440. Under the proper analysis for obviousness type double patenting, the claims of the commonly owned U.S. Patent 7,147,440 must be compared with the claims of the present application, and the commonly owned patents are not prior art to the pending claims. The sole inquiry is whether the claims in the instant application would be obvious over the claims of the commonly owned patents. *See* MPEP § 804. The claims must be considered in their entirety in making an obviousness determination.

Considering only the claims of Benjamin '440 and the currently pending claims in the present application, differences are believed to be evident. The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to more broadly set forth the patent claims of Benjamin '440 in view of Wilson, Chamberlin, Tomberg, and/or Lee. Applicants respectfully traverse this assertion and submit that the present claims do not simply restate recitations of Benjamin '440. Applicants respectfully submit that the recitations of subject matter not found in Claims 1, 2, 3, 6, 10, 11, 12, 13, 17, 21, 23, 24, 25, 26, 27, 29, 30, 32, and 33 of Benjamin '440, together with the omission of subject matter found in Benjamin '440 is not obvious and is not merely a restatement of the prior language. There is no apparent reason, considering only the claims of Benjamin '440, as the obviousness-type double patenting analysis requires, why one of ordinary skill in the art would omit certain recitations and include other recitations in a manner that would have resulted in the present claims and, accordingly, it is submitted that the present claims are not obvious over the claims of Benjamin '440.

Moreover, none of Benjamin '440, Wilson, Chamberlin, Tomberg, and Lee, considered alone or in combination, describes nor suggests the present invention. Specifically, Claim 1 recites a method for assembling a rotor assembly for gas turbine engine, wherein the method comprises "providing a first rotor blade . . . coupling the first rotor blade to a rotor shaft using the dovetail such that during engine operation, cooling air is channeled from the blade internal cavity through a blade impingement cooling circuit for impingement cooling the first rotor blade platform radially inner surface . . . coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms, and such that during operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform."

None of Benjamin '440, Wilson, Chamberlin, Tomberg, and Lee, considered alone or in combination, describes or suggests a method for assembling a rotor assembly for gas turbine engine, as is recited in Claim 1. More specifically, none of Benjamin '440, Wilson, Chamberlin, Tomberg, and Lee, considered alone or in combination, describes nor suggests

coupling a second rotor blade to the rotor shaft such that a platform gap is defined between the first and second rotor blade platforms, and such that during operation a portion of a trailing edge of the first rotor blade platform is facilitated to be cooled by cooling air channeled through a recessed portion of the platform.

Claim 11 recites a rotor blade for a gas turbine engine, wherein the rotor blade comprises "a platform comprising a radially outer surface and a radially inner surface, said platform further comprises a leading edge sidewall and a trailing edge sidewall connected together by a convex-side wall and an opposite concave-side wall, a portion of said trailing edge sidewall is recessed between said platform radially outer and radially inner surfaces to facilitate platform trailing edge cooling . . . ."

None of Benjamin '440, Wilson, Chamberlin, Tomberg, and Lee, considered alone or in combination, describes nor suggests a rotor blade for a gas turbine engine, as is recited in Claim 11. More specifically, none of Benjamin '440, Wilson, Chamberlin, Tomberg, and Lee, considered alone or in combination, describes nor suggests a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge.

Claim 23 recites a gas turbine engine rotor assembly comprising "a plurality of circumferentially-spaced rotor blades . . . each said rotor blade comprising an airfoil, a platform, a shank, and a dovetail . . . said platform further comprising a leading edge sidewall and an opposite trailing edge sidewall connected together by a pair of oppositely disposed platform sidewalls, at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of said platform trailing edge . . . at least a first of said rotor blades comprising an impingement cooling circuit extending through a portion of said shank for channeling cooling air from said blade cavity for impingement cooling said platform radially inner surface."

None of Benjamin '440, Wilson, Chamberlin, Tomberg, and Lee, considered alone or in combination, describes nor suggests a gas turbine engine rotor assembly, as is recited in

Claim 23. More specifically, none of Benjamin '440, Wilson, Chamberlin, Tomberg, and Lee, considered alone or in combination, describes nor suggests a rotor blade including a platform wherein at least a portion of said trailing edge sidewall is recessed between said platform radially outer and inner surfaces to facilitate cooling of the platform trailing edge in combination with an impingement cooling circuit extending through a portion of the shank for channeling cooling air from the blade cavity for impingement cooling the platform.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

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